Slot Transaction Analysis to Estimate Economic Profit at Heathrow Airport

Report to the Civil Aviation Authority

July 2026

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1 Executive summary

1.1 Heathrow Airport operates at close to 100% of its runway capacity, meaning that, according to Heathrow Airport Limited, demand for flights consistently exceeds available supply.[1] This capacity constraint, together with other economic characteristics of the aviation market, may result in there being scarcity rents,[2] whereby ticket prices are set above the level that would prevail in a capacity-unconstrained, perfectly competitive, market. This report refers to economic (or excess) profit derived from capacity constraints as the proportion of these scarcity rents that is captured by airlines.

1.2 This report estimates airline slot-level economic profits at Heathrow Airport ("Heathrow") using evidence from eight observed slot transactions, drawing on transaction value and route data provided by IBA, an aviation intelligence company, and ticket price data based on Civil Aviation Authority (CAA) analysis of RDC APEX data. The methodology converts observed slot transaction prices into:

- an equivalent annual value for the slot bundle,
- then expresses this on a per-passenger basis;
- and as a percentage of average economy ticket prices.

1.3 The analysis was conducted for two scenarios, each using different assumptions for the investment appraisal horizon and cost of capital. The assumptions in these scenarios were agreed between Grant Thornton and the CAA and have been informed by representations from stakeholders. This includes a 10-year horizon at a 10.0% rate of return, and a 30-year horizon at a 7.5% rate of return. These are illustrative of reasonable shorter and long-term scenarios for earning a return on investment. Grant Thornton has not sought to determine whether these are appropriate scenarios from an investor perspective.

1.4 Analysis of the eight observed slot transactions at Heathrow Airport indicates annual slot bundle value per transaction ranging from approximately £3.0m to £11.3m under the 10-year, 10.0% rate of return assumption, and from approximately £1.6m to £6.0m under the 30-year, 7.5% rate of return assumption. On a per-passenger basis, this equates to ranges of approximately £19 to £93 and £10 to £49 respectively, or broadly 6% to 25% and 3% to 13% of average one-way economy ticket prices. Median estimates across the sample of transactions are more moderate, from £16 to £29 per passenger and 6% to 12% of ticket prices across the two scenarios, whereas mean average estimates range from £22 to £41 per passenger and 8% to 14% respectively. All values are in 2026 prices.

[1] Heathrow Airport Limited. Keeping the UK Connected: Domestic Connectivity at Heathrow, May 2026.
[2] Grant Thornton has produced a separate report for the CAA, which sets out a conceptual framework for how and under what conditions scarcity rents are expected to arise in the air travel market, and the extent which such scarcity rents may be captured by airlines in the form of economic profits. Airline profitability: conceptual framework and review of stakeholder submissions, July 2026.

1.5 These estimates should be interpreted with caution. The sample of eight transactions is small and may not be representative of the broader Heathrow slot portfolio. Slot values vary significantly by route type, time of day, and competitive conditions, and the analysis does not quantify the impacts of these variations. Transactions spanning the Covid-19 pandemic (3 out of 8 of the transactions in the sample) may also reflect distressed or atypical market conditions. For these reasons, the results are not extrapolated to produce an airport-wide aggregate figure.

1.6 This report's findings are broadly consistent with Frontier Economics' (Frontier) 2019 analysis, which applied a similar slot transaction methodology to estimate economic profit per slot at Heathrow. After adjusting Frontier's figures for inflation, differences in unit of measurement and appraisal assumptions, the implied economic profit per flight under the 10-year, 10.0% scenario is approximately £6,300 in 2026 prices, which falls between this report's median and mean estimates of £5,400 and £7,100 respectively. The same pattern holds under the 30-year, 7.5% scenario, where Frontier's figure (based on the aforementioned adjustments) of approximately £3,400 per movement again sits within the range of this report's median and mean estimates of £2,900 to £3,800 respectively. The broad alignment between the two analyses, despite differences in sample composition and methodology, provides a degree of cross-validation for the order of magnitude of the estimates presented.

2 Introduction

2.1 This report was commissioned by the Civil Aviation Authority (CAA) and prepared by Grant Thornton. It estimates the scale of the expected future economic (or excess) profit per slot movement (or flight) at Heathrow Airport (Heathrow), using evidence from eight historic slot transactions. The analysis seeks to understand the extent to which scarcity rents exist at Heathrow and to inform thinking about the economic implications of airport expansion, including the potential effect on passenger fares if capacity constraints were eased and the resulting consumer benefits.

2.2 The rest of the report is structured as follows:

- Section 3 sets out the methodology for the slot transaction analysis, including the underlying methodology explaining economic profit where supply is constrained;
- Section 4 presents the results of the analysis;
- Section 5 discusses the extent to which the results can be generalised across all slots across Heathrow;
- Section 6 compares the analysis in the report to similar analysis conducted by Frontier Economics; and
- Section 7 discusses the limitations of the analysis.

2.3 In 2019, Frontier Economics (Frontier) published similar analysis using slot transaction data, generalising their results to produce an airport-wide estimate of economic profit. This report does not adopt that approach, given the material limitations in extrapolating from a small sample of transactions to the full Heathrow slot portfolio, as set out in Section 5. However, the results of Grant Thornton's analysis presented in this report are compared with Frontier's findings after adjusting for inflation and differences in unit of measurement, providing a basis for cross-validation of the order of magnitude of the estimates of economic profit from slot transaction prices. This report is not intended to endorse or critique the analysis conducted by Frontier, but to use it as a cross-validation. However, this report is based on a per route methodology using a different set of slot transactions.

2.4 This report accompanies a separate Grant Thornton report commissioned by CAA (Airline profitability: conceptual framework and review of stakeholder submissions), which sets out a conceptual framework for the existence and relative scale of scarcity rents and economic profits. This other report sets out the theoretical background for how economic profits can occur in different market structures.[3] The analysis in this report provides a simplified explanation of why economic theory would suggest there to be economic profits under capacity constraints.

[3] Grant Thornton. Airline profitability: conceptual framework and review of stakeholder submissions, July 2026.

3 Methodology

3.1 This section first outlines the conceptual framework for how capacity constraints lead to a price above the marginal cost for slots, and therefore economic profit. This is followed by setting out the calculation method for estimating annual economic profit from slot transactions, alongside explanations of the data used and its assumptions.

Conceptual framework

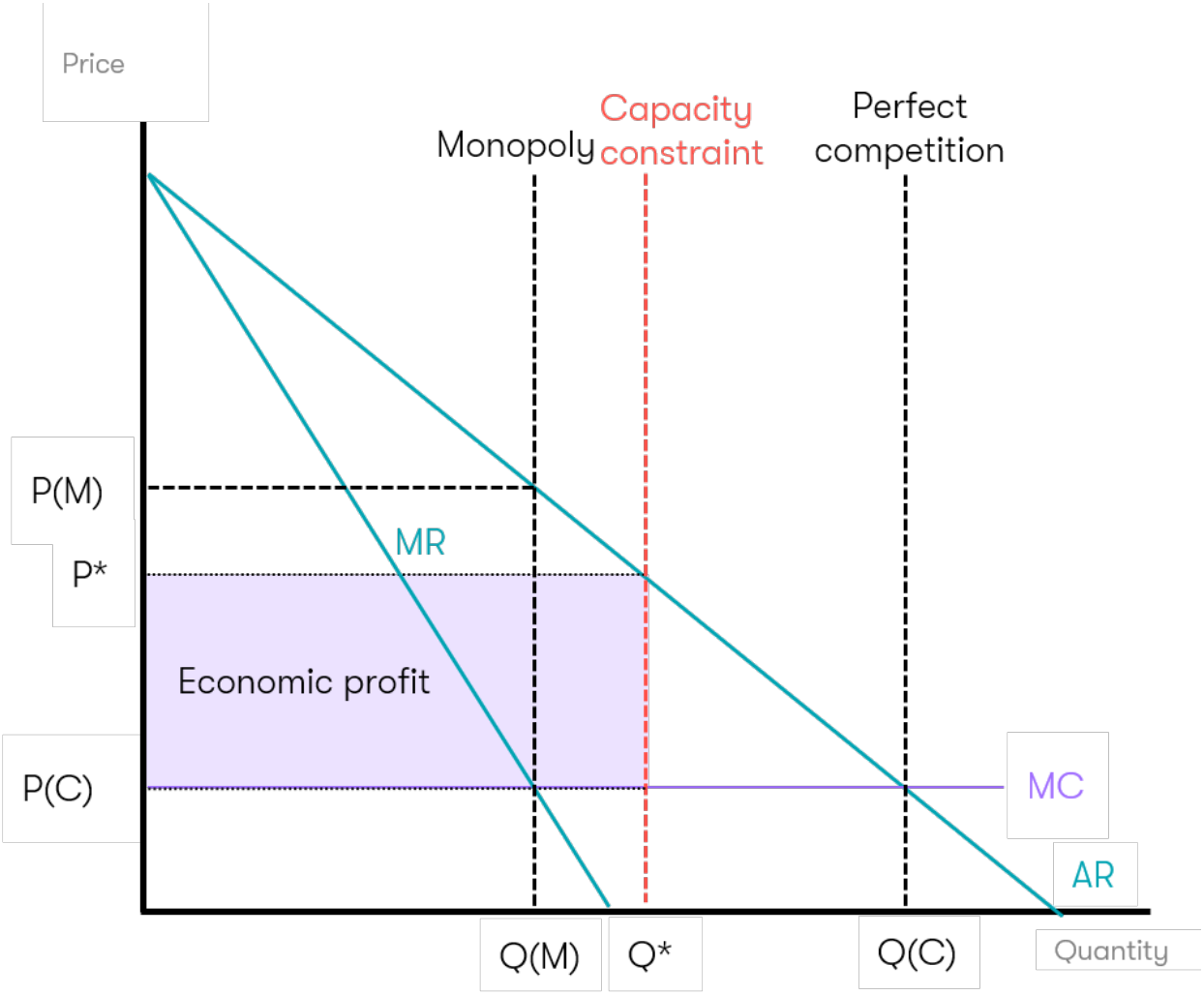
3.2 Heathrow has consistently operated at or near full utilisation of its runway slots, recording the highest movement utilisation rates among comparable hub airports globally (DfT/Airports Commission data, as cited in the House of Commons Transport Committee's review of the Airports National Policy Statement).[4] The slot constraint limits airlines' ability to add frequencies or launch new routes at the airport, and is consistent with the persistent excess demand for Heathrow slots reflected in secondary slot trading values and in airline demand that the slot coordinator is unable to accommodate. This capacity constraint, together with the economic characteristics of the aviation market, may result in there being scarcity rents, whereby ticket prices are set above the level that would prevail in a capacity-unconstrained, perfectly competitive, market. This report refers to economic (or excess) profit derived from capacity constraints as the proportion of these scarcity rents that is captured by airlines.

3.3 In a perfectly competitive market, and absent capacity constraints, economic theory dictates that price should equal marginal cost – as illustrated by price P(C) and quantity Q(C) in Figure 1. Any economic profit that may arise is assumed to be competed away through competition with other market participants and prospective entry into the market (which is made possible by the absence of capacity constraints and the assumption of perfect competition). Normal profit is the minimum return required to keep a business operating, including the opportunity cost of invested capital. Economic or supernormal profit is any profit above this normal profit. By contrast, in the presence of capacity constraints airlines are only able to supply quantity up to the capacity constraint, Q*, which causes prices at P* to be higher. P* is above marginal cost P(C), which results in economic profit of (P*-P(C)) x Q*. This is under simple assumptions where marginal costs are constant and there are no fixed costs. For completeness, Figure 1 also illustrates the expected outcome under monopoly conditions (for example, where a single airline operates a given route and there are no realistic alternatives). In this scenario, the monopolist would increase the price further to P(M), at which point it is maximising its economic profit. This is explained theoretically where the marginal revenue of each additional cost equals the marginal cost – beyond this point the revenue on each additional unit is negative. The monopoly quantity supplied Q(M) is below the capacity constraint. This report has assumed, for illustration purposes, that the capacity constraint is above the

[4] House of Commons Transport Committee (2018), *Airports National Policy Statement*, Third Report of Session 2017–19, HC 548, Chapter 3 (The need for additional airport capacity)

monopoly level of supply, but this may not necessarily be the case in reality. This report does not attempt to identify whether or not this is the case at Heathrow.

Figure 1: Economic theory rationale for the existence of economic profits



Source: Grant Thornton Analysis

Slot transaction values and economic profit

3.4 In circumstances where economic profits exist, it is conceivable that where airlines trade slots with each other, the airline giving up an existing slot would expect to be compensated for the loss of profit and the purchasing airline's willingness to pay would be determined by the profits it expects to make from the slot. Indeed, airlines regularly trade slots and some of these transactions are reported to include the payment of significant sums.

3.5 The level of these payments will likely depend on the extent of excess (or economic) profit on individual routes (both for the buyer and the seller), which in turn will be a function of the economics of that specific route (including, amongst other things, the relationship between passenger demand and available seat capacity, degree of competition and airline market power, and operating costs). An airline would be willing to acquire a slot by paying up to the present value of the expected future stream of excess (or economic) profits on the route for which that slot would be

used. And an airline would be willing to sell a slot that it currently uses for an amount equal to or greater than the present value of the expected future stream of excess (or economic) profit on the route for which that slot is currently being used. In other words, a rational airline will pay no more for a slot than the present value of the future excess (or economic) profit it expects that slot to generate. That is, the annual excess (or economic) profit per flight arrival or departure (slot movement) is equivalent to the level of profit that would need to be earned each year to recover the price paid for each flight.

3.6 The transaction price is first converted to a per-movement basis to account for the structure of slot trading and Heathrow's seasonal schedule, where each transaction includes multiple slots. This per-movement value is then divided by a standard present value annuity factor to reflect the opportunity cost of capital – the sum of discounted cash flows over n years at rate r. This is the equivalent to calculating the constant annual profit stream, discounted over an assumed period, to justify paying the transaction price. The resulting annual economic (or excess) profit estimate can then be expressed on a per-passenger or per-ticket basis to assess consumer impact.

3.7 This can be expressed as the following:

$$(1)\ \text{Annual economic profit per flight} = \frac{\text{Average transaction value per flight}}{\sum_{i=1}^{n} \frac{1}{(1+r)^i}}$$

Where:

$$(2)\ \text{Average transaction value per flight} = \frac{\text{Slot transaction value}}{\text{annual flights}}$$

$$(3)\ \text{Annual flights} = (\text{summer weekly slots} * 2 * 30) + (\text{winter weekly slots} * 2 * 22)$$

n is the number of years over which an airline would expect to recoup its investment or over which it realistically would expect to use the slot profitably, and

r is the airline's expected rate of return

3.8 Estimates of annual economic profit per slot can then be expressed as a per passenger figure (by dividing over the number of passengers on the route in question) and as a proportion of ticket prices (by dividing the economic profit per passenger by the estimated average ticket price).

3.9 Note, the slot transaction price likely represents an upper bound on the congestion premium for the corresponding route. The price paid may reflect value streams beyond the passenger-paid economic rent alone, such as access rights, redeployment optionality and strategic positioning. However, these separate benefits largely derive their value from the capacity constraint itself and would not command the prices observed at an unconstrained airport.

Calculation method

3.10 This analysis estimates annual economic profit per flight, for a sample of eight Heathrow slot transactions between airlines using the Formula (1) above. The analysis uses two illustrative scenarios for the appraisal horizon and expected rate of return, based on assumptions that were agreed with the CAA which are set out in the 'Assumptions' section below.

3.11 It then expresses estimated annual economic profit per passenger and as a proportion of ticket prices by, first, calculating the number of passengers per arrival/departure on the respective route and, second, estimating median ticket prices.

3.12 The number of passengers per arrival/departure is obtained by multiplying an estimated airline route load factor for the season by the estimated aircraft capacity. Airline load factor data is sourced from IBA Airlines, IATA and ICAO, based on 2025 flight activity The number of passengers is then adjusted to reflect the proportion of passengers on a given route that are assumed to be contributing to economic profit.

3.13 The ticket price for a slot is estimated as the median price of single economy tickets across all routes operated by the slot purchaser using that slot. This is done for 30-day and 90-day purchase windows, then the mean is taken across both, giving an estimate of the ticket price for each flight. This approach captures tickets booked in advance as well as more expensive tickets purchased closer to departure. The analysis then estimates economic profit per passenger as a proportion of average economy ticket prices. Other fare classes are excluded due to limited data.

Data sources

Slot transaction data

3.14 The analysis draws on data covering eight historic slot transactions at Heathrow, provided by IBA to Grant Thornton. For each transaction, the dataset includes the buyer and seller, destination, weekly frequency, aircraft capacity and class configuration, average load factors, slot season, and time of day. Together, these variables allow each transaction to be characterised in sufficient detail to estimate the associated economic profit on a per-passenger basis. The slot transaction values were uplifted to 2026 prices using the GDP deflator.

3.15 As specific slot transaction details are commercially sensitive, they are excluded from this report. In addition, slot transaction prices between airlines are not publicly available. The sample of eight transactions represents a subset of activity in the secondary slot market and may not be representative of the full range of transactions at Heathrow. This places limits on the statistical inferences that can be drawn from the analysis.

3.16 Table 1 outlines the weekly slot pairs (arrival and departure) for Summer and Winter seasons for eight slot transactions between 2014 and 2024. Summer lasts from the last Sunday in March to the last Saturday in October (30 weeks).[5] Winter lasts the

[5] IATA - Worldwide Airport Slot Guidelines, p.63.

remaining 22 weeks in the year. Most transactions include a daily slot pair, with the exception of transaction *c* (which includes 5 weekly slot pairs) and transaction *g* which includes 12 weekly slot pairs in Summer and 14 weekly slot pairs in Winter.

Table 1: Summary information on the eight slot transactions

Slot transaction reference	Slot time*	Weekly slot pairs: Summer	Weekly slot pairs: Winter
a	Early morning	7	7
b	Early morning	7	7
c	Late morning	5	5
d	Early afternoon	7	7
e	Early afternoon	7	7
f	Late morning	7	7
g	Early and late afternoon	12	14
h	Late afternoon	7	7

Source: IBA
*Early morning = 05:00 – 8:59, Late morning = 9:00 – 11:59, Early afternoon = 12:00 – 14:59, Late afternoon = 15:00 – 17:59

3.17 Seven of the transactions involved the introduction of long-haul routes to destinations across the United States, Asia, Africa, and the Middle East. The remaining transaction related to a new route to a European destination. Prior to these transactions, the seller's slots were predominantly used for short-haul European routes. Following the transactions, however, the slots were redeployed to support long-haul services operated with larger aircraft.

Ticket price data

3.18 The CAA provided its analysis of RDC APEX ticket price data for the routes associated with each slot transaction. The data contained monthly observations of ticket prices for arrivals and departures at Heathrow for the relevant routes and airlines, captured at 90 days and 30 days prior to departure, across different fare classes. However, data for premium economy, business and first-class fares were limited and unavailable for several routes. As a result, this analysis uses economy ticket prices only.

3.19 Users of this analysis should note that the economic profit expressed as a percentage of ticket price should therefore be treated as an upper bound, since economy fares are typically lower than premium cabin fares and will produce a higher ratio.

Assumptions

Time horizon

3.20 The analysis uses time horizons of 10 and 30 years, agreed between Grant Thornton and the CAA. A shorter horizon of 10 years may better reflect the realistic timeframe over which investors assess returns, given that external shocks, such as the Covid-19 pandemic or oil price crises, can materially affect financial performance within this period. A 30-year horizon, by contrast, is closer to effectively perpetual nature of slot ownership, where rights are held indefinitely and the long-run value of those assets is therefore relevant to any assessment. From an investor perspective, returns would not be considered over an infinite time horizon, whereas a 30-year horizon may provide a reasonable long-term duration over which to appraise returns. The impact of each additional year added to the time horizon becomes smaller due to the discounting effect (the present value of returns diminishes the further from the present those returns are realised). Therefore, the outcome of assuming a perpetual time horizon would not be dissimilar to using the 30-year horizon.

Rate of return

3.21 The analysis applies a rate of return of 10% for the 10-year scenario and 7.5% for the 30-year scenario. These rates were agreed between Grant Thornton and the CAA. Grant Thornton has not undertaken independent research into the appropriateness of these assumptions. Users of this analysis should therefore treat them as illustrative agreed input parameters rather than independently verified estimates.

Proportion of passengers not transferring at Heathrow

3.22 The appraisal assumes that 73.3% of all passengers were flying to and from Heathrow and excludes all passengers transferring at Heathrow. This assumption was agreed with the CAA and based on the 2024 CAA passenger survey report.[6] This assumes that scarcity rents are not applicable to transfer passengers as they can substitute Heathrow with alternative European hub airports, such as Amsterdam Schiphol or Paris Charles De Gaulle, therefore providing price competition. The analysis further assumes that the proportion of non-transfer passengers is the same across all flights. In practice, however, this proportion is likely to vary significantly by route and airline.

Other considerations

3.23 Slot values may vary significantly depending on factors such as time of day, route characteristics, aircraft type, and airline business model. The analysis does not quantify the extent to which these factors explain observed variation. This is due to the limitations of the transaction data in terms of coverage and consistency, which prevents more in-depth econometric modelling of these factors. A sample size of eight is insufficient to robustly quantify these impacts, and some factors may also not be observable in the data.

[6] https://www.caa.co.uk/data-and-analysis/uk-aviation-market/consumer-research/departing-passenger-survey/passenger-survey-report-2024/

3.24 This analysis does not consider differences in profitability across individual airlines or their specific commercial strategies. In practice, airlines vary in terms of cost structures, network configurations, pricing power, and yield management approaches, all of which may also affect the profit generated per slot. The approach taken here instead relies on stylised or average measures of profitability and therefore does not capture airline-specific variations that may affect the valuation of slots or the magnitude of the economic profit.

3.25 Airlines operate as commercial enterprises with an objective to generate returns for their investors. A rational airline would not pay a material sum to acquire a slot unless it expected that slot to generate profit – whether directly through the route it enables, or indirectly through network effects, strengthened hub position, or competitive entry deterrence. The willingness to transact at observed prices is therefore itself evidence that the slot is expected to generate economic value. The precise source of that value – whether route-level margin, network spillovers, or strategic positioning – does not affect the validity of using transaction prices as a proxy for scarcity rents. It simply reflects the complexity of airline commercial models.

4 Results

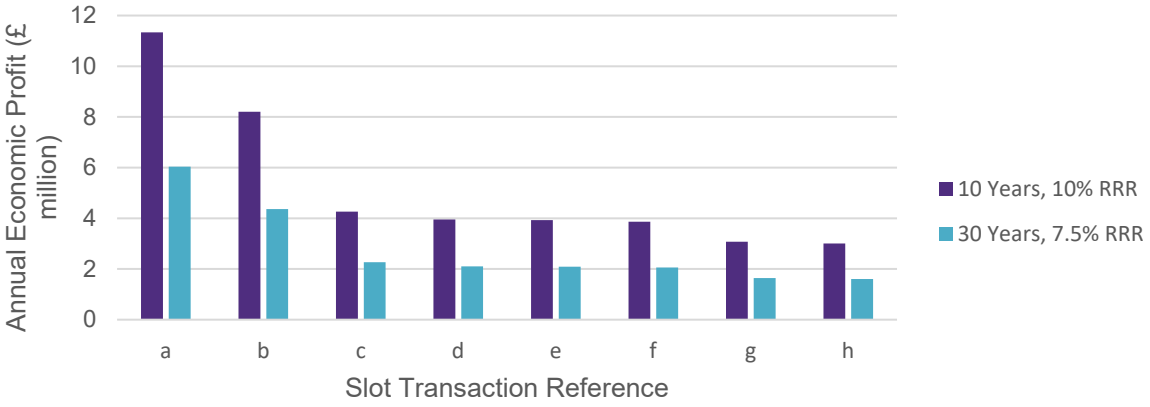
4.1 This section presents the results of the slot transaction analysis described in the previous section, for each of the described scenarios. The results are presented by as an annual figure for the flights in the slot transactions, per flight, per passenger, and as a percentage of average ticket price.

Annual economic profit by slot transaction and by flight

4.2 The analysis shows annual per slot economic profit ranges from approximately £3.0m to £11.3m under the 10-year, 10% rate of return assumption, and from approximately £1.6m to £6.0m under the 30-year, 7.5% rate of return assumption. This translates to a range of £4.1k to £15.5k per flight (arrival or departure) for the 10-year, 10% rate of return assumptions and £2.2k to £8.3k for the 30-year, 7.5% rate of return (RRR) assumption. Economic profit per slot can be interpreted as the economic profit per flight multiplied by the total number of flights in that slot over the course of the year.

4.3 Figure 2 shows the estimated annual economic profit by slot transaction. Slot transaction *a* produces the highest economic profit under both assumptions, while transaction *h* produces the lowest. The median value per flight is £5.4k under the 10-year, 10% rate assumption and £2.9k under the 30-year, 7.5% rate of return assumption. The mean is £7.1k and £3.8k respectively.

Figure 1: Estimated annual economic profit by slot transaction



Source: Grant Thronton Analysis

Economic profit per passenger

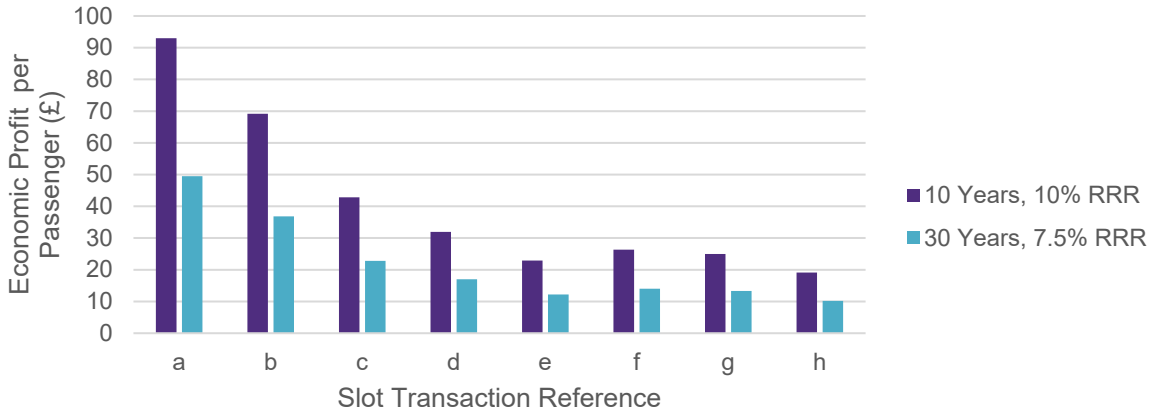
4.4 Expressing the economic profit on a per-passenger basis, accounting for aircraft configuration and capacity, average load factors, and the estimated proportion of direct passengers on each route, produces estimates ranging from approximately £19 to £93 under the 10-year, 10.0% rate of return assumption, and from approximately £10 to £49 under the 30-year, 7.5% rate of return assumption. Transaction *a* yields the highest economic profit per passenger under both scenarios

and transaction *h* the lowest, consistent with the per-slot transaction results. This can be seen in Figure 3, which shows the estimated annual economic profit per passenger, per flight, by transaction.

4.5 The spread of per-passenger values reflects differences in route-level passenger throughput and traffic mix and aircraft capacity. Note that, as set out in the 'Methodology' section, passengers connecting at Heathrow are excluded from this calculation on the basis that they face competitive alternatives via other hub airports and are therefore assumed to not contribute to economic profit.

4.6 Across the eight transactions, the median economic profit per passenger is approximately £16 under the 30-year, 7.5% rate of return scenario and £29 under the 10-year, 10.0% rate of return scenario. The mean ranges from approximately £22 to £41 per passenger, respectively.

Figure 2: Estimated economic profit per passenger per flight by transaction

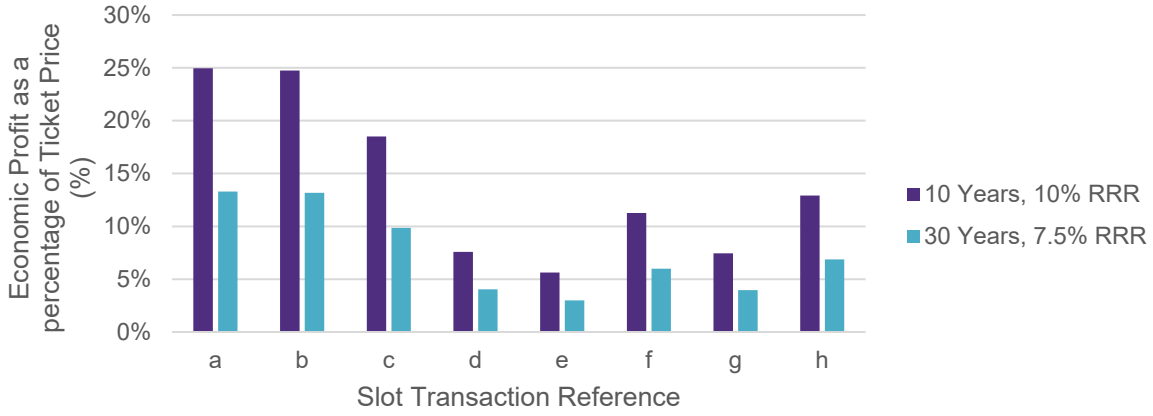


Source: Grant Thronton Analysis

Economic profit per passenger as a percentage of average ticket prices

4.7 Figure 4 shows the economic profit per flight as a percentage of average ticket prices across the eight slot transactions. Under the 10-year, 10.0% rate of return scenario, economic profit ranges from approximately 6% to 25%, with transactions *a* and *b* producing the highest values. The 30-year, 7.5% rate of return scenario consistently yields lower premiums, ranging from approximately 3% to 13%. Across both scenarios, there is notable variation between transactions, reflecting differences in the underlying slot values and average ticket prices in each case. The median economic profit ranges from approximately 6% to 12% and the mean from approximately 8% to 14% per flight, across the 30-year, 7.5% rate of return scenario, and 10-year, 10.0% rate of return scenarios respectively.

Figure 3: Estimated economic profit per passenger per flight as a percentage of the ticket price by slot transaction



Source: Grant Thronton Analysis

Re-scaling assumptions

Proportion of passengers not connecting at Heathrow

4.8 This represents the proportion of passengers assumed to be travelling directly to or from Heathrow, rather than connecting through Heathrow to an onward flight. This distinction matters because ticket prices for connecting passengers are assumed to be set at the competitive level. This is because connecting passengers typically have a wider range of options available for reaching their final destinations. For example, many passengers travelling through Heathrow could instead choose to travel via another major European hub, such as Amsterdam Schiphol or Paris Charles de Gaulle.

4.9 This is a simplifying assumption as the number of alternative routes available to connecting passengers will depend on their specific origin and destination airports. Smaller airports are likely to be connected only to a small number of hub airports, and flight times may make it considerably more attractive to connect at some hub airports than others. In addition, some hubs specialise in terms of the geographies that they serve, which may reduce choice further. Equally, passengers not connecting at Heathrow travelling on routes well-served by one or more competing airlines may pay prices closer to the competitive equilibrium. As such, in reality, airlines may be able to set higher prices for some connecting passengers but be forced by route competition to set prices at competitive levels for some of these passengers. On balance, the assumption adopted in this report is considered appropriate for a high-level, market-wide analysis of this type, thought it would be worth revisiting if the purpose were to obtain more precise estimates of the impact on different passenger segments.

4.10 Both scenarios presented in this section assume that 73.3% of passengers are not connecting at Heathrow. Reducing the rate of passengers not connecting at Heathrow would increase the estimated economic profit per passenger as well as the economic profit as a percentage of ticket price, since the same overall slot value would be spread across a smaller passenger base. The annual economic profit per

slot would be unaffected, as this is calculated prior to the passenger apportionment step.

Ticket prices

4.11 Ticket prices are observed across two booking windows: 30 days and 90 days before departure. These windows capture different points in the booking cycle and therefore reflect different pricing dynamics; fares tend to be higher closer to departure, particularly on business-oriented routes. Both scenarios presented here take the median ticket price within each window for the respective route and the sample period and then average these median prices across the two booking windows. The median is used in preference to the mean to reduce the influence of outlier fares at the extreme of the price distribution. Taking the mean instead of the median has a small effect on the results – the economic profit as a percentage of ticket price does not vary by more than 3 percentage points across any transaction or scenario.

4.12 Premium fares (for example, premium economy, business class) are not taken into account in the present analysis. These can be considerably higher than economy fares – for example, business class ticket prices are often priced at 3-5 times the level of economy fares. This means that our results likely over-estimate the level of economic profit as a percentage of ticket prices. The degree of bias will be greater on routes where there is a larger proportion of seats sold at premium fares and/or where there is a higher mark-up on premium fares relative to economy fares.

5 Generalising from sample of transactions to airport-wide level

5.1 This section considers the extent to which the economic profit estimates from the sample of eight slot transactions considered in this report can be generalised to whole set routes operating at Heathrow airport.

Sample representativeness

5.2 The level of economic profit is likely to vary with slot and route characteristics. The slot transactions observed in this analysis represent a small and potentially unrepresentative subset of the full Heathrow slot portfolio. Grant Thornton have not sought to determine the extent to which this sample reflects the broader distribution of Heathrow slots in terms of time of day, long/short-haul, destination, degree of route competition or airline.

5.3 Long-haul routes – particularly those to destinations not served by alternative UK airports or European hubs, or served at lower frequencies – are likely to attract a higher premium, reflecting the combination of high passenger yields, limited substitutability, and the strategic value to airlines of maintaining point-to-point connectivity. Short-haul routes, where passengers may have access to alternative departure airports or onward connections, would be expected to earn lower or negligible economic profit.

Sample self-selection

5.4 Transactions occur in a setting of limited supply and negotiated exchange, meaning they reflect the circumstances under which buyers and sellers are willing to trade, rather than a comprehensive or random sample of slot values. Transactions are more likely to take place where a high value route (meaning a route with high excess demand and therefore high potential for economic profit) replaces a low value route. The relative commercial position of the existing and new routes may also have a bearing on the value of the transaction – an airline operating a marginal or loss-making route, or an airline in a distressed financial position, may be willing to accept a considerably lower price than the buyer would be willing to pay. There may also be specific circumstances that determine which slots are traded and when. For example, airlines entering administration or making strategic moves into or out of routes/regions or a particular airport. Conversely, grandfathered holders of slots (i.e. airlines which have retained slots since they were first issued) may wish to retain those slots rather than sell at any reasonable price. Therefore, the transaction values included in the sample may understate the value of non-traded slots if extrapolated

to the airport level. In short, extrapolation from the sample to all slots could be both upward or downward of the average value of all slots.

5.5 Given downward sloping demand, the aggregation of marginal transaction values should not be assumed to represent the total or average value of the full slot portfolio, i.e., transaction values would be assumed to decrease as supply increases. This means that observed slot prices are informative about the value of scarce capacity at the margin, but they are not necessarily representative of the average value of all slots at Heathrow.

Route competition

5.6 The presence of competing airlines on a given route is also an important profit driver. High-demand routes served by a single airline may earn economic profit over and above those expected from the scarcity of airport capacity alone. The value of some transactions may therefore partly reflect the degree of airline market power as well as the scarcity of airport capacity.

Post Covid-19 considerations

5.7 The Covid-19 pandemic caused an unprecedented and prolonged collapse in aviation demand, with likely implications for the future demand for air travel and hence limiting the potential for economic profit to be earned. During and in the immediate aftermath of the pandemic, many carriers faced acute liquidity pressures. As such, slot disposals in that period may have reflected distressed sales rather than arm's-length transactions reflecting long-run commercial value.

5.8 Conversely, transactions observed after the recovery in travel demand may reflect a degree of post-Covid optimism or pent-up demand that is not necessarily representative of a steady-state market. Investor appetite and risk appetite for long-duration aviation assets shifted materially across this period, making it difficult to treat pre- and post-Covid transactions as equivalent data points.

5.9 The sample used in this report includes five transactions completed between 2014 and 2019, and three transactions completed between 2020 and 2024. The average economic profit per slot is 41% lower for the more recent set of transactions. Other factors may also influence this change, such as the slot characteristics, but this cannot be empirically tested given the small sample size.

Conclusion on the application to all slots in Heathrow

5.10 Taken together, these considerations suggest caution in extrapolating the results from a small sample of transactions to the wider population of slots and routes operated to/from Heathrow. For this reason, this report makes no attempt to apply the results across all slots at Heathrow.

6 Comparison with previous analysis

6.1 In 2019, Frontier Economics published analysis on their estimates of the economic profit at Heathrow, which included similar slot transaction analysis.[7] This section compares Frontier's results with the results from this report. Frontier used a different sample of eight slot transactions ranging from 2013 to 2017. Frontier takes a different approach to calculating the economic profit per flight by calculating the mean of transaction prices per flight (slot movement) across all eight transactions before calculating economic profit by equating to long-term returns from the slot. Conversely, Grant Thornton's analysis estimates economic profit per flight for each transaction individually, providing a range of outcomes which can then be averaged.

Analysis

6.2 To compare Frontier's results with those presented in this report, Frontier's analysis was replicated using its methodology, but with three adjustments:

- First, Frontier used slot transaction data from 2013 to 2017, with all figures expressed in nominal terms. In the replication provided in this report, the GDP deflator was applied to adjust for inflation such that the analysis provided figures in 2026 prices.
- Second, Frontier used a different unit of measurement. The analysis provided in this report applied an adjustment to express both analyses (Frontier replication and Grant Thornton analysis) in terms of total annual movements per slot transaction, covering both Summer and Winter seasons.
- Third, the rate of return and time horizon were standardised to align with this report's assumptions: a 10-year appraisal period at a 10.0% rate of return, and a 30-year period at 7.5%.

6.3 Table 2 presents the estimated economic profit per flight (arrival or departure) under both appraisal scenarios, comparing the Frontier replication with the results from this report's analysis. Under the 10-year, 10.0% rate of return scenario, the Frontier replication produces economic profit of approximately £6,300 per slot movement. The analysis in this report produces a median estimate of approximately £5,400 and a mean of approximately £7,100, suggesting that the Frontier figure sits broadly within the range of GT estimates.

6.4 Under the 30-year, 7.5% scenario, the Frontier replication produces economic profit of approximately £3,400 per slot movement. The GT median and mean estimates are approximately £2,900 and £3,800 respectively, again bracketing the Frontier

[7] https://www.frontier-economics.com/uk/en/news-and-insights/case-studies/case-study-i21280-transport-congestion-at-heathrow-assessing-the-impact-on-ticket-prices/

figure. Across both scenarios, the Frontier replication is broadly consistent with the GT analysis, falling between the median and mean in each case.

Table 2: Comparison of Frontier Economics' analysis compared to Grant Thorton's analysis, excess profits per slot movement (arrival or departure) thousands

	Economic profit per flight ('000) 10 years, 10% RRR	Economic profit per flight ('000) 30 years, 7.5% RRR
Frontier Replication	£6.3	£3.4
Grant Thornton analysis median	£5.4	£2.9
Grant Thornton analysis mean	£7.1	£3.8

Source: Grant Thronton Analysis

6.5 Frontier averaged the price per flight across all transactions in their sample to estimate an economic profit of a non-specific slot. These results were then generalised to Heathrow as a whole; this report does not adopt that approach for the reasons set out in Section 5.

7 Limitations

7.1 This section outlines the key limitations of this analysis that should be considered when interpreting the results.

Data and measurement limitations

7.2 The analysis relies on observed transaction prices, which may embed deal-specific factors such as bilateral negotiations, strategic considerations, or bundled assets. As a result, observed prices may not reflect the pure economic value of standalone slots. Additionally, the transactions include bundles of slots across different seasons and at different times of the day. It is therefore not possible to directly attribute the estimated economic profit to the specific season or route.

Sample size and representativeness

7.3 The number of observed slot transactions is small, which limits statistical inference and restricts the ability to test systematically how factors such as time of day, slot quality or network position affect values. This issue is discussed more fully in chapter 5.

Reliance on assumptions

7.4 Converting slot prices into annual economic profit requires assumptions to be made about airlines' and their investors' appraisal horizons and expected rates of return, and about passenger volumes, load factors and ticket prices. While these were tested through sensitivity analysis, results remain assumption dependent.

7.5 The results are presented as a range rather than a single estimate, reflecting uncertainty in two key assumptions: the rate of return and the time horizon over which slot value is recovered. Heathrow slots are grandfathered, meaning that provided an airline meets the usage requirements, slots are retained indefinitely. In practice, an airline could hold and operate a slot in perpetuity, which would support a longer appraisal horizon.

7.6 The methodology treats a slot as a depreciating asset - where value is fully recovered over the chosen appraisal period. In reality, slots likely do not depreciate in the conventional sense. An airline retains the option to sell its slots on the secondary market at any future point, potentially realising further value beyond the returns captured in this analysis.

Slot transaction level vs airport-wide

7.7 The analysis is conducted at a slot transaction level, which provides insight into the marginal value of individual slots but requires caution when generalising results to Heathrow as a whole. Each transaction reflects the specific circumstances of the buyer and seller at a point in time, including the routes operated, the aircraft deployed, and the commercial context in which the transaction took place.

7.8 The analysis does not account for airline-specific characteristics such as cost structures, pricing strategies, or network configurations, all of which influence the value that a given airline derives from holding a slot. Equally, route-specific features, including destination, competitive intensity, passenger mix, and frequency, affect the level of economic profit that can be sustained on any given service. These factors introduce heterogeneity across transactions that the analysis captures only partially.

7.9 As a result, the estimates presented here are best understood as indicative of the range of congestion values observable at the margin of the slot market, rather than as a comprehensive or representative measure of value across the full Heathrow slot portfolio.